

# Exploring Quasi-One-Dimensional Magnetism

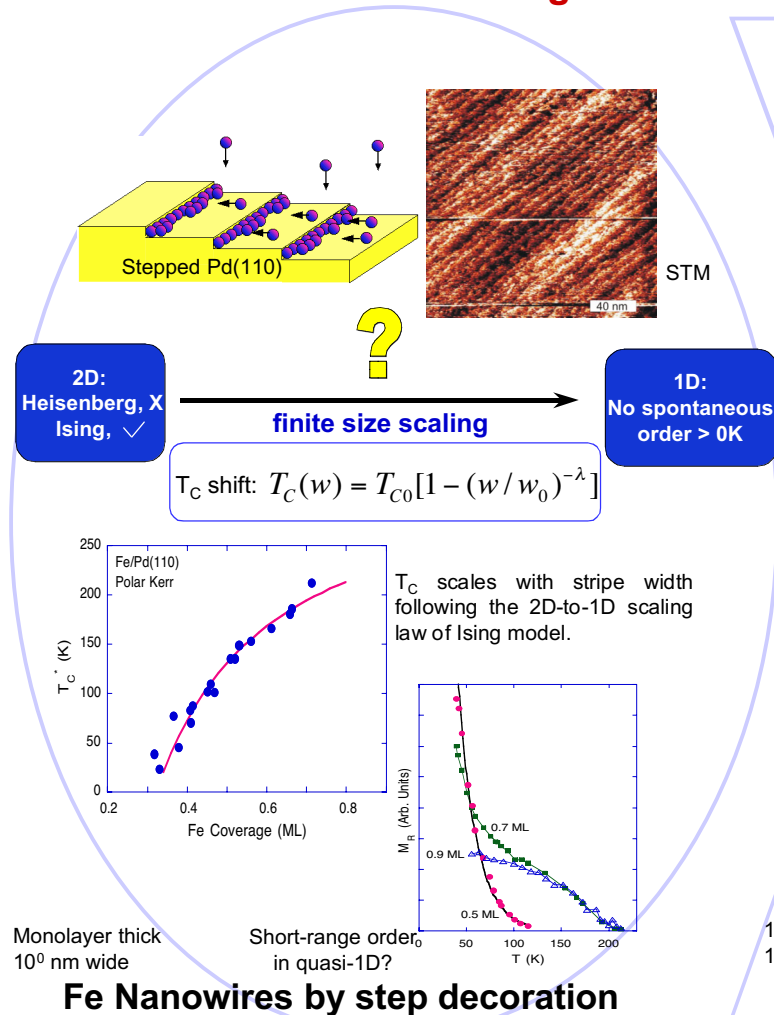
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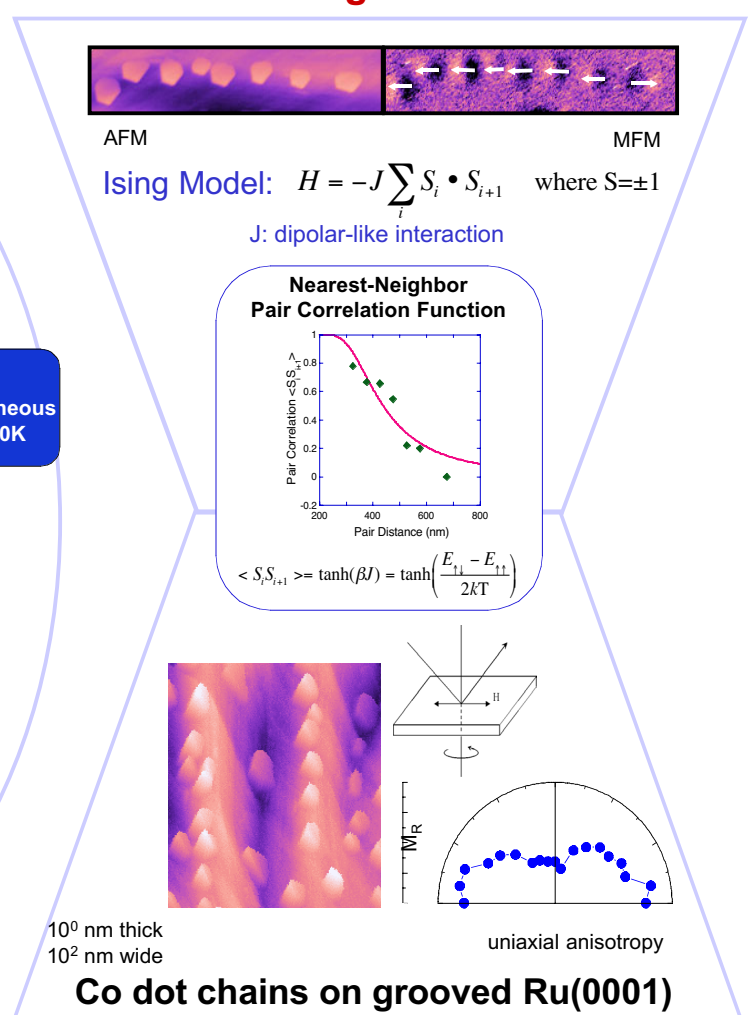
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**Motivation: utilizing self-assembled nanomagnets as model systems to investigate fundamental physics at quasi-one-dimension**

## 2D-to-1D Finite Size Scaling



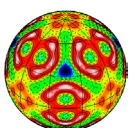
## Classical 1D Ising Chain



## Conclusion

While 2D physics has been extensively investigated in the past decades as the fabrication techniques for thin films are perfected, it is only recently that it becomes possible to fabricate artificial quasi-1D systems to test the fundamental understandings of quasi-1D systems, as demonstrated in our works. Step decoration of Fe allowed us to explore the 2D-to-1D finite size scaling in quasi-1D magnetic systems, while the Co dot chains realized a classical 1D Ising model system. They open a new door to the largely unknown world of a lower dimension.

Dongqi Li et al., *Phys. Rev. B Rapid Commun.*, 66, 020404(R) (2002); *Phys. Rev. B* 64, 144410 (2001).



**BES - DOE**

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